Forest Management Agreements

Second Five-Year Review 1981-1986

April, 1987

Ontario

Ministry of Natural Resources

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Minister

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Deputy Minister

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Printed in Ontario, Canada

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INTRODUCTION

Forest Management Agreements (FMAs) came into being in Ontario through an amendment to the Crown Timber Act in 1979. The Act as amended provided that the Minister of Natural Resources, subject to the approval of the Lieutenant-Governor-in-Council, could enter into Forest Management Agreements with private sector companies.

The FMAs, which cover a specific section of Crown land, replace existing licensing arrangements with an Agreement which requires the companies to manage the forests in the FMA area on a sustained-yield basis. In addition to harvesting, the FMA holder is responsible for all planning, regeneration and other silvicultural activities necessary for proper forest management, including the construction of access roads.

The Ministry of Natural Resources provides certain funding, and must approve the required management documents submitted by the companies. The Agreements are for 20 years, but Section 15 provides that every five years, the Minister must evaluate how the company has carried out its obligations under the Agreement and the associated management documents. If satisfactory, the FMA is renewed for another five years. This is called an "evergreen" arrangement.

In 1985, the Minister released the first five-year reviews of the first five FMAs in the province. A report on the relationship between harvest and growth, including regeneration, of timber for the five FMA areas was tabled in the Ontario Legislature, as required by legislation. All five FMAs were renewed for another five-year term.

As of November, 1986, there were 28 FMAs in the province, covering a total of 162,689 square kilometres. This is 63 per cent of the 257,244 square kilometres of licensed forest in the province. The location of these Agreements is shown in **Figure 1.**

In 1986, the five-year reviews on three more FMAs have been conducted and are the subject of this year's report. The Agreements are:

1. Abitibi-Price Inc. Spruce River Forest FMA #500700
2. Great West Timber Black River Forest FMA #500800
3. Domtar Forest Products Lake Nipigon Forest FMA #500900

This report summarizes the various forest operations carried out by the three companies and presents the recommendations of the individual committees which conducted the reviews. The role of the committees was to assess the commitment of the companies to their obligations as identified in the Agreements.

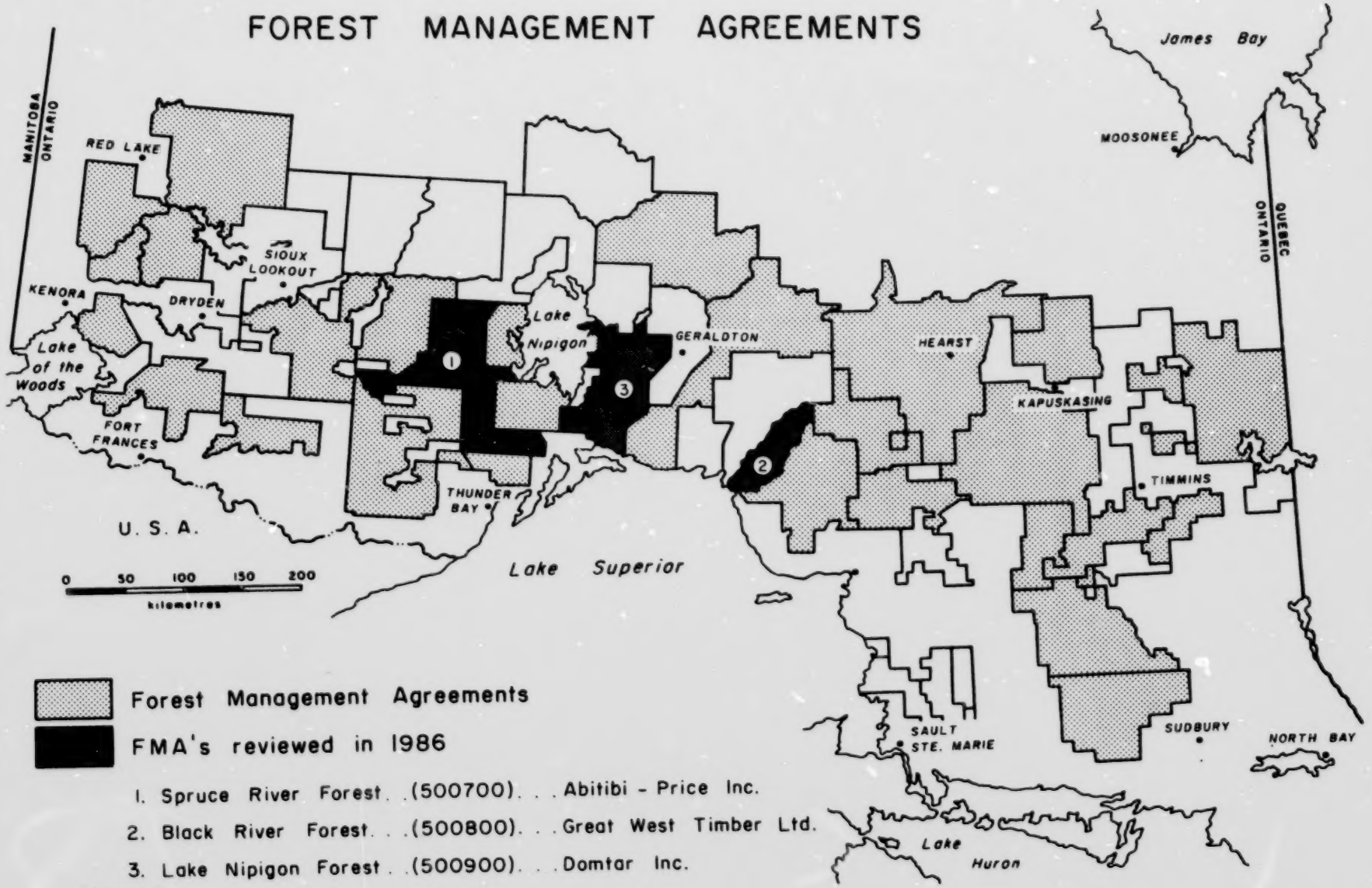

Figure 1

The geographic location of the three FMAs reviewed and other Agreement areas in the province.

The obligations are:

a) submission dates for management and operating plans, annual work schedules and reports are to be established and met;

b) harvest: may not exceed the Maximum Allowable Depletion (the annual allowable cut) and companies may be liable for damages following the fifth year if their planned requirements are not harvested;

c) obligations for treatment of Not Satisfactorily Regenerated (NSR) lands are to be met:

d) compliance with ground rules which indicate the silvicultural treatments on a site-specific basis;

e) road construction.

The review committees were comprised of three members of ministry staff from outside the region being reviewed. The committees assessed the commitment of the companies to their FMA obligations, reviewed written records and conducted field inspections to assess company performance.

Activities on the FMA areas during the five-year periods prior to and after the agreements were signed are compared in **Table 1**. It shows that while the actual harvest increased nine per cent, regeneration increased 29 per cent, tending increased 129 per cent and site preparation increased 138 per cent.

Table 1

Relationship between harvest and silviculture activities on FMAs 500700, 500800 and 500900 for a five-year period before and after entering into Agreements.

	Hectares		
	By Ministry Before FMA	By Companies and Ministry during FMA	Percentage Change
Harvest	44,537	48,761	9
Regeneration	16,600	21,480	29
Tending	6,190	14,203	129
Site Preparation	9,655	23,054	138

The Agreements have a requirement for the companies to treat Not Satisfactorily Regenerated (NSR) lands which existed at the signing of the FMA. In two instances, the obligations were substantially exceeded. (Table 2) In the third case, the Lake Nipigon Forest, the treatment of NSR lands was postponed pending the results of the 1984 re-survey (see Lake Nipigon review report). The company and the ministry have now re-established the proper level of NSR lands requiring treatment.

Table 2

Not Satisfactorily Regenerated (NSR) obligations and treatment for three FMA areas for 1981-86.

	Hectares	
Company and Forest Name	**NSR Obligation to Date**	**NSR Treated**
Abitibi-Price Inc. Spruce River Forest FMA 500700	4,569	7,048
Great West Timber Ltd. Black River Forest FMA 500800	705	2,700
Domtar Inc. Lake Nipigon Forest FMA 500900	7,142 (original) 1,256 (new)	3,661

The committees also reviewed company concerns about the FMA arrangements and made a number of recommendations to address issues specific to each FMA.

In the case of the Abitibi-Price Inc. Spruce River Forest FMA and the Domtar Forest Products Lake Nipigon Forest FMA, the review committees recommended that the Agreements be extended for another five-year term.

In the case of the Great West Timber Black River Forest FMA, the company recently purchased the capital improvements on the area and took over the licence from another company. The committee recommended that renewal of the FMA be delayed until completion of an approved five-year Operating Plan and the company satisfying the ministry that it is in complete control of all planning activity for the Black River Forest.

Five Year Review

Abitibi-Price Inc.
Spruce River Forest
Agreement 500700
1981-1986

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I INTRODUCTION

In accordance with Section 15 of Forest Management Agreement #500700 between the Minister of Natural Resources and Abitibi-Price Inc., a review committee was appointed to determine whether or not the company had met its obligations satisfactorily under the terms of the management documents.

The committee was composed of:

Mr. David Wray, Regional Forester, Northwest Region, Kenora;
Mr. Lang Chamberlin, Acting Outdoor Recreation Coordinator, Northern Region, Cochrane;
Mr. Ron Christie, Regional Director, Algonquin Region, Huntsville (Chairman).

II COMPANY OBLIGATIONS

1. Planning

The Spruce River Forest, Forest Management Agreement (FMA) #500700 was signed on December 15, 1981 with Abitibi-Price Inc. Several of the Agreement's conditions pertained to the company's planning responsibilities:

- The company was required to prepare a Management Plan within 12 months. This deadline was met.

- The company's initial draft of its Operating Plan was submitted to MNR on May 21, 1982.

- Annual Plans are required to be consistent with the existing Operating Plan. The 1983-84 Annual Plan and location map was submitted by the company with only allocated stands indicated. No withdrawals or deferments were mapped.

- Due to inconsistencies between the company's Operating Plan map and that of MNR, some stands were allocated that should have been deferments and incorrect deferments were indicated.

- The company requested major amendments immediately prior to submission of at least two Annual Plans, 1984-85 and 1985-86. These amendments were caused by the unforeseen closure of Northern Wood Preservers' sawmill, the clean up of NSR areas and major harvesting reallocations to accommodate budworm damaged timber.

The company has assigned the FMA management, operating and annual planning responsibilities to one Management Forester as a portion of his duties. He is also responsible for company chemical site preparation and tending, and one-half of the planting programs.

The facts indicate that, initially, the company's commitment to the planning aspect of FMA management was limited.

However, the company planning process is improving and has many positive aspects to indicate increasing company commitment:

- The company was already involved in forest management through a 1976 company policy to practise sustained yield on its freehold blocks (15,000 hectares treated and planted in 1986).

- The company has assigned planning responsibilities as portions of the duties of two Management Foresters, one responsible for management, operating and annual planning, the other for field planning. In addition, the company employs approximately 15 graduate foresters in the field as line cut supervisors, and all field staff are involved in plan input and implementation.

- Management, operating and annual planning are tied into the company's budgeting process, especially at the Annual Plan level.

- Annual Plans are reviewed and approved by company management prior to submission to MNR.

2. Harvesting

For the first five years of the agreement, the calculated Maximum Allowable Depletion (MAD) was 55,655 hectares. The forecasted demand was 46,660, resulting in a declared surplus of 8,995 hectares. The harvest cut for this period was 35,474 hectares, which represents an undercut of 11,186 hectares or 24 per cent, as shown in Table 1.

Table 1

Comparison of the Maximum Allowable Depletion (MAD), forecasted harvest from Operating Plan and actual harvest levels for the period 1981-86 on the Spruce River Forest.

	Hectares		
Working Group	MAD	Forecasted Harvest	Actual Harvest
SP1	12,650	12,650	10,914
SP2	7,860	7,860	4,295
BF2	5,490	2,640	1,501
PJ1	5,160	4,125	2,912
PJ2	7,805	6,245	3,632
PO2	9,175	8,120	7,868
BW2	7,515	5,020	4,352
Total	55,655	46,660	35,474

The company attributed this undercut to a significant downturn in markets which resulted in a cutback of three mills from a seven to a six-day week. In addition, the company continued the purchase wood program although proportionally decreased also.

3. Access Roads

The Company completed construction of 89 per cent of the FMA-funded primary access roads and 68 per cent of the FMA-funded secondary roads which were planned in the five-year operating plan.

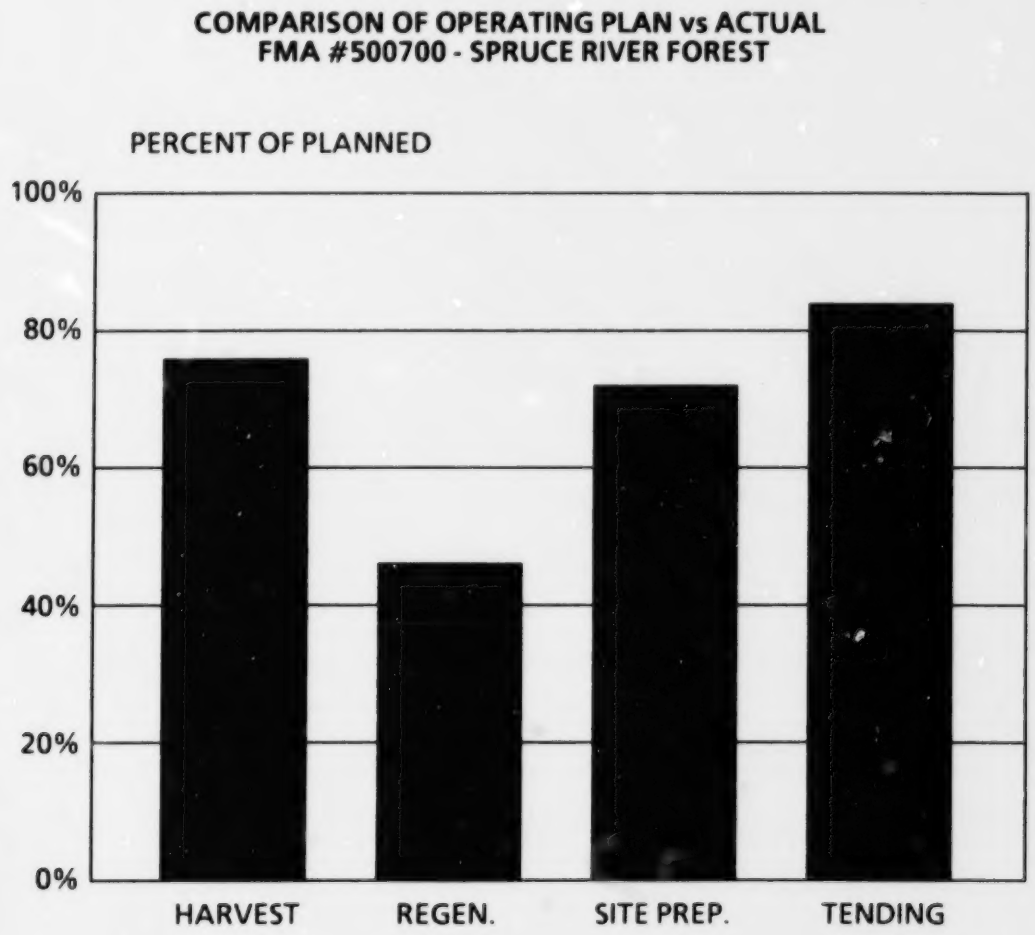
This compares with completion of 65 per cent of the primary and 104 per cent of the secondary roads planned in the sum of the five Annual Plans for the period under review. The bulk of the roads constructed were secondary access roads; the total length of roads constructed amounted to 498 kilometres, compared to a total of 502 kilometres planned in the annual plans as amended.

The shortfall in construction (in comparison to the five-year Operating Plan) results from MNR's approval of only 68 per cent of the Operating Plan's proposals. In addition, during the first two years of the plan, operations were cut back due to the recession.

An examination of the road locations proposed in the five-year Operating Plan and those proposed in the Annual Plans showed variances. For the most part, these variances were minor and resulted from the Operating Plan's use of airphotos without ground checking in the location of roads. Additional roads were constructed as a result of plan amendments due to changes necessitated by budworm salvage operations.

Figure 1

Comparison of the actual levels of harvest, regeneration, tending and site preparation accumulated to 1986 and expressed as a percentage of the levels originally planned in the 1981-86 Operating Plan.



An examination of road location contained in the approved Annual Plans and amendments to the plans, with the locations of actual construction, showed no significant variances. This examination included both primary and secondary roads that were FMA-funded and those constructed at company expense.

4. Silviculture

The review team was particularly impressed with the manner in which the company is undertaking its obligations with respect to silviculture (Figure 1).

The company has exceeded its commitments for regeneration and tending on Not Satisfactorily Regenerated (NSR) lands, with only site preparation falling short of the commitment, primarily due to the fact that not all areas encountered actually required this treatment. On recent cutover, however, the company has carried out 41 per cent of the regeneration commitment and 47 per cent of the tending commitment. A main reason for the shortfall in regeneration was the unavailability of planting stock due to large losses in 1985. The company had, however, reduced its demand for stock in 1985 from 8.326 million to 4.7 million. This was done because the company was finding that all current site preparable cutover was being planted or seeded and no further planting stock could be accommodated.

The company is concerned that stock allocations for 1985, 1986 and 1987 are significantly lower than its demand.

The field trips showed dramatically that the company is site preparing all treatable areas within the cutovers, ensuring good planting and has the tending program (aerial herbicide application) well in hand.

The professionalism of company staff in dealing with the silvicultural program was quite evident. A detailed summary of the company's forest operations and ministry payments is presented in Table 2.

5. Not Satisfactorily Regenerated (NSR) Lands

The company participated in the originl NSR survey and felt, at the outset of the initial five-year period, that there would be little difficulty in meeting its NSR obligations.

The company's commitment to reforest NSR lands, based on the initial NSR survey was 4,569 hectares for the five-year period. The Operating Plan proposed the treatment of 7,406 hectares for regeneration and tending, while the five Annual Plans proposed a total of 6,536 hectares.

TABLE 2

Detailed summary of the company's forest operations and ministry payments for 1981-86 (ministry phase-in not included).

FMA EXPENDITURE AND ACCOMPLISHMENT REPORT	500700	SPRUCE RIVER FOREST ABITIBI-PRICE INC.

FOR THE FIVE YEAR PERIOD 1981-1986

ACTIVITY	HECTARES	DOLLARS
NATURAL REGENERATION		
TOTAL	175	0
ARTIFICIAL REGENERATION		
PLANTING BAREROOT	0	
PLANTING CONTAINER	6,759	
SEEDING DIRECT	258	
SEEDING WITH SITE PREP	238	
TOTAL ARTIFICIAL	7,255	1,682,872
TOTAL REGENERATION	7,430	1,682,872
TENDING		
CHEMICAL CLEANING/AERIAL	6,648	
CHEMICAL CLEANING/GROUND	0	
OTHER TENDING	0	
TOTAL TENDING	6648	516,687
SITE PREPARATION		
MECHANICAL	10,711	
CHEMICAL	1,717	
PRESCRIBED BURN	0	
TOTAL SITE PREPARATION	12,428	2,245,708
OTHER		
SEED/CONE COLLECTION	0	0
PROTECTION	0	0
TOTAL SILVICULTURAL COSTS		4,445,267
ROAD CONSTRUCTION	KILOMETRES	DOLLARS
PRIMARY	27.56	1,201,895
SECONDARY	474.23	8,389,684
TOTAL CONSTRUCTION	501.79	9,591,579
ROAD MAINTENANCE		
TOTAL	1,101.53	467,633
TOTAL ROAD COSTS		10,059,212
TOTAL EXPENDITURES		14,504,479

The actual NSR area treated during the period was well in excess of the commitment, 7,048 hectares, of which 72 per cent was tending. The company is concerned about its ability to continue to meet the original commitment, due to limitations of the original survey and to the resultant lower availability of suitable treatment area.

Prior to treatment, the company verifies its NSR lands using a combination of infrared photography, area stratification, initial visual checking and, finally, on questionable areas, stocking assessments as previously described.

The company has not confined itself to the original Class 2 and 3 NSRs and has now resureyed a total of 46,561 hectares (58 per cent of the original NSR survey area). The surveys have convinced the company that the original NSRs are in far better condition than originally reckoned and that less area is available for treatment than was originally calculated.

A comparison of the original survey with the results of the Company's resurvey is contained in **Table 3**.

Table 3

Results of Re-surveys of the NSR Lands by Abitibi-Price Inc.

Original NSR Survey		NSR Resurvey Results									
		Class									
Class	Area	1	2	3	4	5	6	Unsurveyed	Uncut	Unproductive	Exclusions
1	37,120	–	–	–	–	–	–	37,120	–	–	–
2	3,333	562	1,460	286		50	120	598	181	7	69
3	14,943	1,202	2,244	2,450	71	535	1,972	4,261	2,093	74	41
4	969	221	48	17	–	38	8	514	122	1	–
5	2,584	31	25	41	–	59	97	2,043	277	1	10
6	25,165	813	4,179	4,497	3	325	1,491	13,249	147	10	1
Total	84,114	2,829	7,956	7,291	74	1,007	4,138	57,785	2,829	93	121

In 1985, MNR commissioned KBM Forestry Consultants Inc. to carry out a review of silvicultural programs and planting stock requirements of the Spruce River FMA which, among other things, evaluated the company's position on the availability of NSR lands for treatment. Despite a criticism of the company's assessment methods, the KBM report supported the view that much (up to 40 per cent) of the original Class 3 and 4 NSR lands were adequately stocked to spruce or pine.

6. Maintenance of Productivity

The Forest Management Agreement obligates the Company to produce successive crops of timber on a sustained yield basis. Table 4 shows a comparison of the Maximum Allowable Depletion during the first five year term of the Agreement and lists the harvest, depletion and regeneration efforts. The Maximum Allowable Depletion for the next five year term is also shown. Normally the Allowable Depletion is expected to drop as the overmature portion of the forest is fully harvested or depleted. If the full Allowable Depletion is not depleted it will remain at the same or higher levels in subsequent terms.

Table 4
Comparison of the 1981-1986 Maximum Allowable Depletion, total depletion, harvest and regeneration activities and the 1986-1991 Maximum Allowable Depletion. (Ministry Phase-In operations included.)

FMA 500700
ABITIBI-PRICE INC.
1981 TO 1986
Hectares

Working Group/or Forest Unit	1981-1986 Maximum Allowable Depletion	Total Depletion	Harvest Cut*	Regeneration Total	1986-1991 Maximum Allowable Depletion
Spruce 1	12,650	10,914	10,914	n/a	11,744
Spruce 2	7,860	4,295	4,295	n/a	7,479
Balsam Fir	5,490	1,501	1,501	n/a	5,320
Jack Pine 1	5,160	2,912	2,912	n/a	3,534
Jack Pine 2	7,805	3,632	3,632	n/a	8,010
Poplar	9,175	7,868	7,868	n/a	8,332
White Birch	7,515	4,352	4,352	n/a	7,172
Total	55,655	35,475	35,475	11,216	51,591

III SURPLUS

This topic has been introduced previously in the discussion of the company obligatons regarding harvesting. Since the company undercut the forecast by only 24 per cent during the first five years, it would appear that they made a reasonable declaration of surplus at the outset. The company is confident that the declaration of surplus is accurate for the second five years, and that the harvest cut will be more in line with the forecasted demand.

IV INTEGRATED RESOURCE MANAGEMENT

In recognition that there will be areas of forest lands which, because of their location or nature, should be managed by the ministry for uses other than sustained yield forest production, the company agreed in the ground rules to allow areas to be withdrawn from the FMA (up to five per cent of MAD). This is in addition to the five per cent area indentified in all Agreement documents. The company also agreed to co-operate in implementing numerous withdrawals and deferments introduced by MNR at the Annual Plan level.

However, the company displayed a lack of commitment to the principles of Integrated Resource Management during the early part of the initial five-year operating period:

- There was little two-way communication with MNR about, or understanding of, the management principles and objectives of withdrawals and deferments. This was exemplified by company expectations of MNR to identify all "Areas of Concern" and appropriate prescriptions. However, such prescriptions were generally implemented with little or no question. In addition, it should be pointed out that MNR's terminology regarding withdrawals, deferments, AOCs, etc., changed during this period of the FMA. As a result, there was some confusion on the part of the company and MNR which needed to be clarified. This has been done.

- As previously mentioned in the Planning section, the company did not identify any withdrawals or deferments on the 1983-84 Annual Plan and allocation map submitted to MNR. This resulted in several deferments, previously identified in the Operating Plan, being approved by MNR and harvested by the company.

- In many cases, the company elected to either increase the area of no-cut prescriptions and/or not harvest the cut portions of 50 per cent cut/leave deferments.

However, increasing company commitment to Integrated Resource Management principles has been demonstrated recently by better communciation, especially entering the second five-year operating period:

- The company responded positively to public and MNR concerns about proposed crossings of the Grew and Loganberry Rivers, important tourism waterways, by proposing the alternative of a parallel road system with no crossings.

- There is a growing company appreciation of the value of habitat management (e.g. wildlife travel corridors) to wildlife.

- There has been an evolution of company-MNR communication about other resource uses -- from dealing strictly with the District Crown Representative (DCR), to dealing with other MNR services with the DCR present, to dealing directly with other services regarding withdrawals and deferments and keeping the DCR informed.

- The company is currently dealing directly, on a one-to-one basis with other resource users (e.g. trappers, tourist outfitters, etc.).

- The company has shown a commitment to deal quickly and effectively with incursions on exclusions, withdrawals and deferments.

V RECORDS

1. Harvest Cuts and Depletions

The Company bases its cutover and fire depletion maps and records on supplementary aerial photography. Airphotos are taken in January and May to correspond to the company's fiscal year (January 1 to December 31) and to that of the MNR (April 1 to March 31).

Depletions reported in the Annual Report correspond to the net area cut (or burned), but do not apparently include bypass and no-cut reserves. Depletion maps at a scale of 1:15,840 accompany the Annual Reports, with a duplicate set kept on file in the company offices. These depleted areas are, in addition, recorded on Forest Resources Inventory (FRI) chronoflex maps, also stored at the company's Thunder Bay office. The depletion records appeared, upon examination, to correspond to the depletion maps.

2. Silvicultural Records

The company keeps duplicate sets of silvicultural records, one based on MNR's Silvicultural Information System (SIS) and one based on the company's system (also called SIS). The company system is employed throughout its Canadian divisions.

The company's use of the MNR system is done at the request of the District Crown Representative. SIS cards are completed for all site preparation, planting, seeding and tending projects. Two copies are produced: one is submitted to MNR at completion of the annual work program in February, the other is held in company files. Maps at a scale of 1:15,840 are appended to each copy. These records are also stored on the company's IBM XT micro-computer for backup storage and summary generation.

Apart from this, the company has its own record-keeping system. The information held includes the base map, project number, year, area, treatment type, cost and assessment results. The data are stored on a mainframe computer at the company's Toronto head office and used for report generation. Master maps (scale 1:15,840) are maintained up to date at the company's Thunder Bay office.

All the records were easily accessible and of excellent quality. Since these records are available to MNR, the review team sees no reason to continue to require the company to manually complete MNR's SIS cards.

3. Regeneration Surveys

The company's obligations to carry out regeneration stocking assessments will begin in the fifth year following regeneration treatment. The first of these will not begin until 1987. Nonetheless, the company carries out survival and stocking assessments for the purpose of pre-treatment confirmation of the class of NSR lands and early determination of regeneration failures. The present assessment methods have evolved over the past five years.

(a) Survival Assessments

Survival Assessments are based on clusters of five temporary circular sub-plots, located on airphotos from an identifiable ground fixture. The intensity of the sample is one 50-square-metre plot per five hectares of treatment. At each sub-plot, all trees are located, staked, numbered and assessed with regard to planting quality (first-year only) condition and, in the fifth year, increment and total height. Plots are re-visited in the first, second and fifth years following planting.

(b) Stocking Assessments

Stocking Assessments are based on randomly located four-square-metre plots located in a linear fashion, two chains apart. At each plot, the stocking of acceptable conifers is noted; at every third plot, there is a tree count by species, a note of the dominant coniferous species and its height and increment. Notes are also made on the degree of competition from other species.

(c) Depletion Recording

During the first five years, only harvest depletions were recorded (with the exception of a small area of reserve depletion in 1985). In some cases, areas have been allocated in the Operating Plan as parts of large blocks. These areas have subsequently been left uncut due to inoperability (e.g. age or terrain), but no classification of the area has been made.

They are simply left as an uncut portion of the allocation rather than classified as bypass, untreatable, etc. Since allocated areas which are left uncut should take a high priority for allocation in the next five years, this recording practice could foreseeably cause problems if the company does not continue its current practice of scheduling these areas for third party operators.

4. Financial Records

The review team did not examine the company's financial records in detail as this is done operationally at the time of invoice submission. Several invoices that the company submitted for payment were checked against the work that the company stated that it had completed as part of the review team's selection of field sites for inspection. There were no discrepancies. The DCR also stated that he had no concerns about the company's accounts.

VI COMPANY COMMITMENT

The company has a very definite commitment to managing the Forest Management Agreement. Company staff commitment to the FMA includes two Management Foresters. One is responsible for management planning, the herbicide program and half the planting program; the other is responsible for field planning, mechanical site preparation and half the planting program. There is an FMA road construction foreman and 30 to 35 contract supervisors (four to six-months-plus).

The company has set the FMA up as a separate location (cost centre) in their bookkeeping system.

A study was recently completed at considerable expense to the company, to determine the status of NSR classifications on FRI maps.

The Management Forester responsible for site preparation conducts an extensive field planning exercise and on-site inspections to determine the most effective site preparation methods and layout. In recent cuts, every hectare that can be site prepared, is site prepared.

The company is experimenting with various site preparation techniques, including different types of mechanical site preparation equipment, chemicals and chemical application equipment, and combinations of both.

The company has taken quality control very seriously by establishing a daily reporting procedure for all site preparation, planting and tending projects, with a company quality assessor right on the job site.

The company has tried to ensure an understanding of all aspects of Timber Management by its staff. There are six-month job exchanges for forestry and harvesting staff. Camp foremen provide input on silvicultural work planning; they direct implementation by cutters if the operation is within a reasonable distance of the camp.

VII COMPANY CONCERNS

The staff of the company expressed some concerns relating to the Agreement and the company's interaction with MNR. They are as follows:

1. Planting Stock

Quality:

The company insists on using overwintered container stock only, and is under the impression that MNR will provide this type of stock. MNR appears to be trying to have the tree-growing contractors produce two crops per year. The company does not wish to plant this type of stock. The company has concluded that MNR minimum standards for tree quality for the growers have, in fact, become the objective. In this company's view, these standards are too low.

In addition, the company believes that MNR ought to have more expertise available to monitor and assist the contract tree growers in order that losses can be minimized and the quality maximized.

The company wishes to take on the responsibility for supplying its own nursery stock, with MNR paying the normal production costs and the company entering into its own contracts with private growers. The company feels it would have more control over stock quality in that way. Currently, this is a factor which the company feels has significant impact on the success of the regeneration program, but over which it has no control.

Quantity:

After the initial shake-down period in the tree planting component of the Agreement, the company has adjusted its figures to indicate what it considers to be a reasonable level of artificial regeneration effort. This level is set at 4.7 million trees for the next five years.

The company has been informed that it will receive 3.8 million trees in 1987 as a result of the ministry placing a ceiling on the total number of trees that will be produced in Ontario. The company is concerned that if its objective of planting 4.7 million trees is not reached, a backlog of lands will develop. The company does not wish to see this happen because it has made significant progress in eliminating any existing NSR lands.

2. NSR Lands

The company was concerned about the stocking rates applied to the different categories of NSR land. This has been negotiated successfully with MNR for the next Operating Plan period.

In addition, the definition of "free to grow" is not clear and is currently being discussed with MNR. This issue should be agreed upon as soon as possible.

3. Annual Work Plan Approval and FMA Allocation from MNR

The company is concerned that MNR is very slow in approving the company's annual work plan because of very minor adjustments that the ministry insists ought to be included.

The company stated that notice of the allocation of funds was received on June 13, 1986. This is far too late for the company to make its plans and hire its contractors. In fact, by that date, considerable money had already been spent.

The company also finds it very difficult to make any long-term plans (longer than one year) because of a lack of funding continuity by MNR.

4. Transfer of Technology and Technology Development

The company looks upon itself as the land manager in the FMA area. In order to be effective in planning and the development of various silvicultural prescriptions, the company believes that its staff must have a very close working relationship with MNR staff, especially forestry and wildlife staff. The review team believes that this type of relationship has developed and is working well.

However, the company believes that MNR staff could benefit from a more structured form of information exchange (e.g. workshop or seminar). Similarly, the company believes that its staff could benefit from such an exchange.

5. Silvicultural Treatments

The company perceives a strong feeling from MNR that the company has to restrict itself rigidly to treating each and every hectare as per Table 1 of the agreement. Every hectare is not treatable. The company has proposed that MNR examine treated and non-treated areas from 1984, and advise the company if the ministry agrees with the decision to treat or not.

6. Forest Protection

The company questions MNR's capability to provide adequate protection of existing and especially regenerating forests against insects and disease. Concern was expressed that the best, legally available tools, were not being used (chemical spraying for spruce budworm).

VIII RECOMMENDATIONS

The Review Committee recommends:

1. That the Abitibi-Price Inc. Spruce River Forest FMA (#500700) be extended for a further five-year period.

2. That the ministry communicate and discuss with the company the principles of Integrated Resource Management in order that the staff of the company develop a better understanding of, and an increased commitment to, those principles.

3. That the ministry withdraw the requirement that the company complete MNR SIS cards.

4. That the company and the ministry work towards properly classifying those uncut portions of the allocations as bypass, untreatable, etc., in order to prevent problems in the future.

5. That the ministry review its tree contracting program with the objective of improving the quality and ensuring the quantity of the stock produced.

   Such a review should include:

   - o an examination of the current stock standards;
   - o the issue of producing two crops per year as compared to one overwintered crop;
   - o the need to provide more technical expertise to contract tree growers and additional monitoring during the growing season;
   - o a consideration of the feasibility of giving the company responsibility for supplying its own nursery stock, with the ministry paying the normal production costs and the company entering into its own contracts with private growers.

6. That the company and the ministry amend Schedule "B" to recognize those lands which have changed NSR class since the original survey.

7. That the company and the ministry negotiate and develop an agreement on the definition of free-to-grow.

8. That the ministry develop a more effective process for review and approval of company Annual Plans.

9. That the ministry notify the company of the company's allocation of FMA funds in a more timely manner.

10. That the ministry examine, in co-operation with the companies, the possibility of establishing a more structured forum (workshops, seminars) for the exchange of information between companies and the ministry. Such a forum would be of benefit to both company and ministry staff.

11. That the company and ministry examine treated and non-treated areas in the FMA area and determine whether to treat or not to treat.

12. That the ministry continue to assess the most effective and efficient methods of carrying out forest pest control.

IX OBSERVATIONS

1. The new Timber Management Planning process involving the Class Environmental Assessment for Timber and the Timber Management Planning Manual will require a firm commitment by the company of staff and time. In addition, in this same process, the company will be required to propose suitable prescriptions consistent with the principles contained in MNR guidelines, for areas of concern identified by MNR.

   This will require a continuation and improvement in communications with MNR staff in order to develop an understanding of the management principles and objectives associated with other resource uses.

2. The company has an excellent record-keeping system and is to be complimented for the quality of its records.

3. The first few years of any new undertaking, such as an FMA, is a time for learning about and adapting to, the new system. The company has done very well on both counts and this process is continuing. The Review Committee believes that the company is firmly committed to doing the best work possible on its FMA area.

Five Year Review

Great West Timber Ltd.
Black River Forest
Agreement 500800
1981-1986

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I INTRODUCTION

The Ministry of Natural Resources signed a Forest Management Agreement (FMA) with the Ontario Paper Company, a division of the Quebec North Shore Paper Company Ltd., for the Black River Forest area. This FMA area is referred to as Agreement #500800.

Towards the end of the first five-year period of the FMA, the capital improvements on the area were purchased by Great West Timber and the licence transferred. With this transfer, Great West assumed full responsibility for the FMA from its inception.

1. Review Committee

The Review Committee for the Black River Forest FMA of Great West Timber, was comprised of:

Mr. J.R. Oatway, Regional Director, Eastern Region, (Chairman);
Mr. D. Scott, Forest Management Supervisor, Ignace District;
Mr. P. Smith, Regional Biologist, Algonquin Region.

The Committee had difficulty with some aspects of the review, due to the licencee changes on the FMA area.

2. Review Problems

As outlined in the introduction, Ontario Paper Company was the initial FMA holder, and held this position for approximately four years and 11 months, when the capital improvements on the area were sold to Great West Timber and the licence transferred.

With the transfer, Great West Timber assumed full responsibility for the FMA from its inception. Great West engaged a new company, North West Timber Ltd., to assume some of the responsibilities of the Black River licence area. The controlling interest of Great West was purchased by Buchanan Forest Products in July of 1986. It is important to explain the foregoing, in order to illustrate the complexities faced by the review team in this audit.

The audit team met at Great West offices in Thunder Bay, with principals of Buchanan Forest Products, Great West Timber, and North West Timber.

Since the controlling interest of Great West had only recently been assumed by Buchanan Forest Products, the full impact of that purchase was still being felt. There was no one in attendance who had an intimate knowledge of this FMA throughout the first five-year period.

Further discussions and site inspections were conducted from the North West Timber offices in Manitouwadge.

II TASK OF REVIEW COMMITEE

The committee attempted to review the company obligations through the following aspects of the FMA:

1. Planning -- Management, Operating and Annual Plans.
2. Had the FMA holder taken on full responsibility for managing the Black River concession, including the commitment to integration of management and operations?
3. Did the company have in place an acceptable record keeping system?
4. Road construction.
5. Commitment to integrated resource management.

1. Planning -- Management, Operating and Annual Plans

a) Management Plan

The Management Plan was submitted on time, and outlined a Maximum Allowable Depletion (MAD) of 17,475 hectares. Of major importance in the plan is an accelerated program of primary road construction during the first decade of the agreement, not only for the purpose of cutting oldest first, but also to fully access the concession.

b) Operating Plan

The Operating Plan was submitted late, but with an approved extension, and indicated a harvest of only 6,515 hectares of the MAD.

c) Annual Plans

Late submission of plans was a problem in some years of the agreement due, in part, to lengthy review and analysis of submissions. Late submission dates were accepted by the ministry.

The Audit Team concentrated on a review of the 1984/85 and 1985/86 Annual Plans. Despite an intensive review of these Annual Plans by the Designated Crown Representative (DCR) and required revisions made by the company to take into consideration the concerns of the DCR, an excessive number of further amendments were requested by the company throughout the period of the Annual Plans. While some of these amendments were fairly minor, some required changes to operating areas, both inside and outside the five-year Operating Plan area.

It must be acknowledged that during the first five-year period of the FMA, the Ontario Paper Company was going through some serious mill conversion problems, which apparently necessitated adjusting its wood requirements on short notice.

2. Company Responsibility and Organization

a) Responsibility

The review committee saw little evidence that Great West was prepared to accept full responsibility for the FMA obligations. This evaluation is based on the letter from Great West to the District Manager in Terrace Bay, which indicated in part:

"North West Timber Ltd. will be responsible to Great West Timber for all management planning activities, relating to the Forest Management Operating Plan and Annual Work Schedule. Great West Timber, as the FMA holder, will be responsible for the approval and submission of the Operating Plan and the Annual Work Schedule to the Ministry. Correspondence relating to the management planning activities or details may be sent directly to North West Timber in Manitouwadge, with copies to Great West Timber in Thunder Bay."

b) Organization

A principal intent of FMAs is the combining of harvest and silvicultural operations into an integrated program. Apparently, full integration did not occcur during this five-year period, as operations staff were not involved in, nor committed to, the planning process. This is reflected in the large number of requested revisions to Annual Plans.

3. Records

A good system of record keeping is in place.

Harvest Depletion Records: One discrepancy was noted for 1981/82, where the area reported as harvest cut was, in realilty, the area of depletion including bypass areas. All other years showed only actual cuts.

Silvicultural Records: The silvicultural record-keeping system was excellent.

Roads: Records are filed by road name, and include all reports and maps of each section approved for payment.

4. Roads

Although there was a significant underachievement of harvest objectives, an ambitious road construction program proceeded during the initial five-year term. The accelerated road access program, as per Management Plan, effectively provides access to virtually all of the Black River Concession. At the same time, the roads direct the harvesting to the older stands first.

5. Integrated Resource Management

The five-year Operating Plan contained a comprehensive appendix of "Enhanced Management Areas", outlining special terms and conditions. For these areas of concern (such as wildlife travel corridors, aquatic feeding areas and fish habitat), modified harvest cutting practices were prescribed.

Field observations by the review committee suggest a sincere effort to conform with the requirements for modified cutting and appropriate construction of stream crossings.

III COMPANY CONCERNS

The company expressed concern about the nature of communications and the volume of "paperwork" between the company and MNR. All parties agreed that efforts are required to improve this relationship, through increased field contacts between the Crown DCR and forest management staff of the company. More on-site interaction and less adversarial written communication would be of benefit to the company and the ministry.

IV PLANNED VS. ACTUAL

The following sections outline the planned outputs and actual acccomplishments for the first five years of the FMA for harvest and silviculture operations, as shown in **Figure 1**, and road construction as shown in **Table 2**. A detailed summary of company forest operations and ministry payments for 1981-86 is presented in **Table 4**.

1. Harvest

The Maximum Allowable Depletion (MAD) or allowable cut for the Black River Forest, as calculated in the Management Plan, was 17,475 hectares for the period 1981-1986. The forecast harvest from the Operating Plan was 6,515 hectares.

Actual depletion was 3,808 hectares, 22 per cent of the Management Plan MAD, or 58 per cent of the Operating Plan forecast harvest. For the conifer working groups, this rose to 35 per cent of the MAD, or 61 per cent of the Operating Plan forecast harvest.

Table 1

Comparison of the Maximum Allowable Depletion (MAD), forecast harvest from Operation Plan and actual harvest levels for the period 1981-86 on the Black River Forest.

		Hectares	
Work Group	**MAD**	**Forecasted Harvest**	**Actual Harvest**
SP2	4,605	2,680	1,698
SP3	620	400	295
BF2	3,105	2,190	865
PJ2	2,185	715	815
PO2	1,995	235	0
PO3	1,220	85	68
BW2	1,870	165	47
BW3	1,810	45	20
OC2	65	0	0
Total	17,475	6,515	3,808

The underharvest of the forecast harvest from the Operating Plan, was a result of Ontario Paper Mill problems.

2. Roads

The audit team did all its inspections by road, and therefore had an opportunity to travel a good portion of the FMA construction. Roads construction met the standards for primary and secondary road classes. The company now has an excellent road system almost throughout the forest (**Table 2**), which should make management of the area much easier for both operation and regeneration.

Table 2

Comparison of planned versus actual road construction from the Operating Plan.

	Kilometres	
Road	**Planned**	**Actual**
Primary	189.70	142.30
Secondary	76.61	74.38
Total	266.31	216.68

3. Silviculture

The audit team was impressed with the dedication and enthusiasm of the two staff members responsible for the regeneration activities, both on the current cutover and NSR lands. A comparison of silvicultural accomplishments against those stated in the Operation Plan for the period 1981-86 is shown in **Figure 1** and **Table 3**. A detailed summary of the company's forest operations and ministry payments is presented in Table 4.

Figure 1

Comparison of the actual levels of harvest, regeneration, tending and site preparation accumulated to 1986 and expressed as a percentage of the levels originally planned in the 1981-86 Operating Plan.

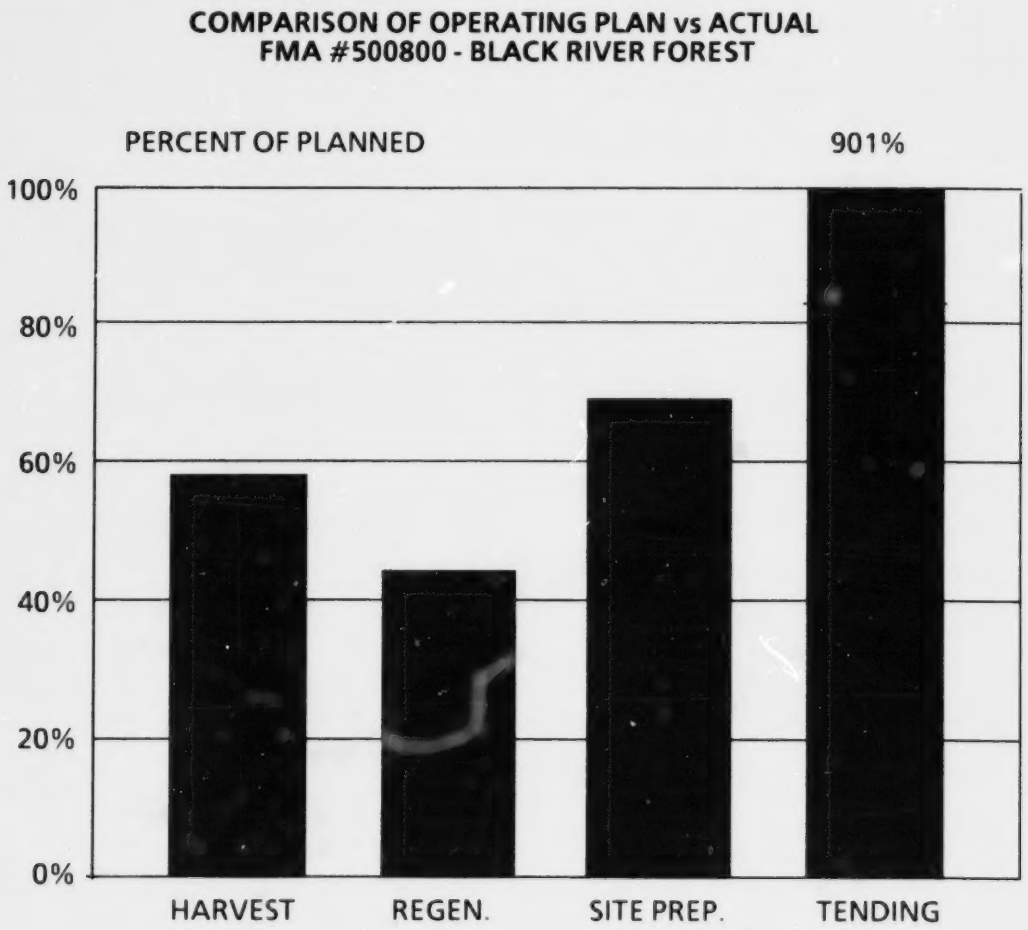

Table 3

Comparison of levels of silviculture as stated in the 1981-86 Operating Plan, Annual Plan submissions and actual accomplishments.

HARVEST CUT - 3,808 HECTARES

Silviculture on Recent Cutover	Planned ha. (Op. Plan)	Planned ha. (Annual)	Actual ha.
Planting (Bareroot and Container)	681	1320	1007
Seeding	183	616	363
Sub-Total	864	1936	1370
Natural	648	648	226
Total Regeneration	1512	2584	1596
Tending	0	226	226
Site Preparation	2260	2199	2086

NSR COMMITTMENT - 705 HECTARES

Planting (Bareroot and Container)	3321	702	705
Seeding	346	38	32
Total NSR Regeneration	3367	740	737
Tending	243	2013	1963
Site Preparation	2332	1399	1147

TOTAL

Regeneration	5179		2333
Tending	243		2189
Site Preparation	4592		3233

TABLE 4

Detailed summary of the company's forest operations and ministry payments for 1981-86 (ministry phase-in not included).

FMA EXPENDITURE AND ACCOMPLISHMENT REPORT	500800	BLACK RIVER FOREST GREAT WEST TIMBER

FOR THE FIVE YEAR PERIOD 1981-1986

ACTIVITY	HECTARES	DOLLARS
NATURAL REGENERATION		
TOTAL	226	0
ARTIFICIAL REGENERATION		
PLANTING BAREROOT	1,198	
PLANTING CONTAINER	514	
SEEDING DIRECT	0	
SEEDING WITH SITE PREP	395	
TOTAL ARTIFICIAL	2,107	621,596
TOTAL REGENERATION	2,333	621,596
TENDING		
CHEMICAL CLEANING/AERIAL	2,115	
CHEMICAL CLEANING/GROUND	74	
OTHER TENDING	0	
TOTAL TENDING	2,189	281,629
SITE PREPARATION		
MECHANICAL	3,233	
CHEMICAL	0	
PRESCRIBED BURN	0	
TOTAL SITE PREPARATION	3,233	837,973
OTHER		
SEED/CONE COLLECTION	0	0
PROTECTION	0	0
TOTAL SILVICULTURAL COSTS		1,741,198
ROAD CONSTRUCTION	KILOMETRES	DOLLARS
PRIMARY	142.30	4,801,063
SECONDARY	74.38	1,386,817
TOTAL CONSTRUCTION	216.68	6,187,880
ROAD MAINTENANCE		
TOTAL	499.12	210,580
TOTAL ROAD COSTS		6,398,460
TOTAL EXPENDITURES		8,139,658

4. Maintenance of Productivity

The Forest Management Agreement obligates the Company to produce successive crops of timber on a sustained yield basis. **Table** 5 shows a comparison of the Maximum Allowable Depletion during the first five year term of the Agreement and lists the harvest, depletion and regeneration efforts. The Maximum Allowable Depletion for the next five year term is also shown. Normally the Allowable Depletion is expected to drop as the overmature portion of the forest is fully harvested or depleted. If the full Allowable Depletion is not depleted it will remain at the same or higher levels in subsequent terms.

Table 5

Comparison of the 1981-1986 Maximum Allowable Depletion, total depletion, harvest and regeneration activities and the 1986-1991 Maximum Allowable Depletion. (Ministry Phase-In operations included.)

FMA 500700
GREAT WEST TIMBER LIMITED
1981 TO 1986

Hectares

Working Group/or Forest Unit	1981-1986 Maximum Allowable Depletion	Total Depletion	Harvest Cut*	Regeneration Total	1986-1991 Maximum Allowable Depletion
Spruce 2	4,605	1,698	1,698	n/a	4,732
Spruce 3	620	295	295	n/a	638
Balsam Fir	3,105	865	865	n/a	3,268
Jack Pine	2,185	815	815	n/a	2,255
Poplar 2	1,995	0	0	n/a	2,147
Poplar 3	1,220	68	68	n/a	1,301
White Birch 2	1870	47	47	n/a	2,032
White Birch 3	1,810	20	20	n/a	1,938
Other Conifer	65	0	0	n/a	148
Total	17,475	3,809	3,808	4,100	18,458

*As reported in 1986/91 Operating Plan.

V RECOMMENDATIONS

Based on the findings of the review committee, it is recommended:

1. That renewal of the FMA be delayed until completion of an approved five-year Operating Plan and the company satisfying the ministry that it is in complete control of all planning activity for the Black River Forest.

2. That an organization be put in place which emphasizes the integration of harvesting operations and silviculture. This organization should reflect the corporate commitment to the Black River Forest FMA by the company.

3. That both the company and the ministry place emphasis on maintaining a close working relationship, which encourages a co-operative approach to management, including practical application of ground rules. Both parties should promote information exchange and problem resolution through close consultation "in the field".

4. That the road construction program be closely linked to the harvest cut on an annual basis. If further roads are required, emphasis should be placed on secondary road construction, rather than additions to the primary road network.

Five Year Review

Domtar Inc.
Lake Nipigon Forest
Agreement 500900
1981-1986

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I INTRODUCTION

In December 1979, the Crown Timber Act was amended to permit the Minister of Natural Resources, subject to the approval of the Lieutenant Govenor-in-Council to enter into Forest Management Agreements (FMAs) with private-sector companies. FMAs are intended to ensure effective and efficient sustained yield forest management on specific areas of Crown land. They grant the agreement-holder the right to harvest those areas in perpetuity, provided certain stipulated commitments regarding harvesting and regeneration of the forest are fulfilled.

The FMAs are established for 20-year periods. The Minister is required to determine at the end of each term of five consecutive years whether or not the obligations of the company, as set out in the Agreement and associated management documents, have been satisfactorily met. If so, the Minister will extend the FMA for another five-year term.

The Lake Nipigon Forest Agreement was signed on March 31, 1981. The review of that Agreement was undertaken during the period of August 11-15, 1986 by the following:
Mr. E.L. Borczon, Regional Forester, Central Region, Richmond Hill;
Mr. J.C. Williamson, Regional Biologist, Eastern Region, Kemptville,;
Mr. R.A. Riley, Regional Director, Northern Region, Cochrane, (Chairman).

In undertaking the review, company and ministry documents were scrutinized, company and ministry staff were interviewed, and the results of forest management activities on the Lake Nipigon Forest were examined in the field. Central to the review were investigations of how well company obligations were met in the areas of planning, harvesting, record keeping and surplus timber management. The degree of company commitment to the FMA process and company concerns about that process were also examined.

II RESULTS OF THE REVIEW

1. Planning

The timing of submission and approval of Management, Operating and Annual Plan submissions is set out in the Agreement. These plans describe what and how much of each management activity the company intends to undertake and where those operations will be conducted. The Agreement was not concluded until the end of the first year of the initial five-year term. Therefore, the annual plans for the initial two years of the first five-year term were effectively developed outside the terms of the agreement.

Subsequently, both the company and the ministry found it impossible to meet the Agreement submission deadlines for the Management and Operating Plans and the Annual Plan for the third year. This appears to have been caused by unfamiliarity with both the size of the planning effort required and with the planning process. Flexibility to extend such planning deadlines is much more restricted under the new Timber Management Planning guidelines. In future, therefore, the parties will have to take appropriate steps to ensure timely submissions. The final two Annual Plans of the first five-year period and the Operating Plan for the second five-year period were submitted and approved on time. Annual reports were appropriately compiled and submitted.

The review team detected an apparent conflict between the stated objective of maximizing conifer harvest from the Lake Nipigon Forest and the company's surplus strategy of foregoing conifer harvest at this time in favor of future flexibility of woodsupply. This apparent conflict would suggest the need for a review, and if necessary, revision of the company's objectives for the area.

2. Operations

A summary of operations and associated costs for the period 1981-1986 is given in **Table 1**. The following provides a more detailed comment:

a) Harvesting

The harvest cut for the Lake Nipigon Forest for the initial five-year period was 75 per cent of that proposed in the Operating Plan (Figure 1). The shortfall was primarily a result of a slowdown in mill production during years two and three, resulting from the downturn in the economy during the early 1980s.

TABLE 1

Detailed summary of company's forest operations and ministry payments for 1981-86 (ministry phase-in not included).

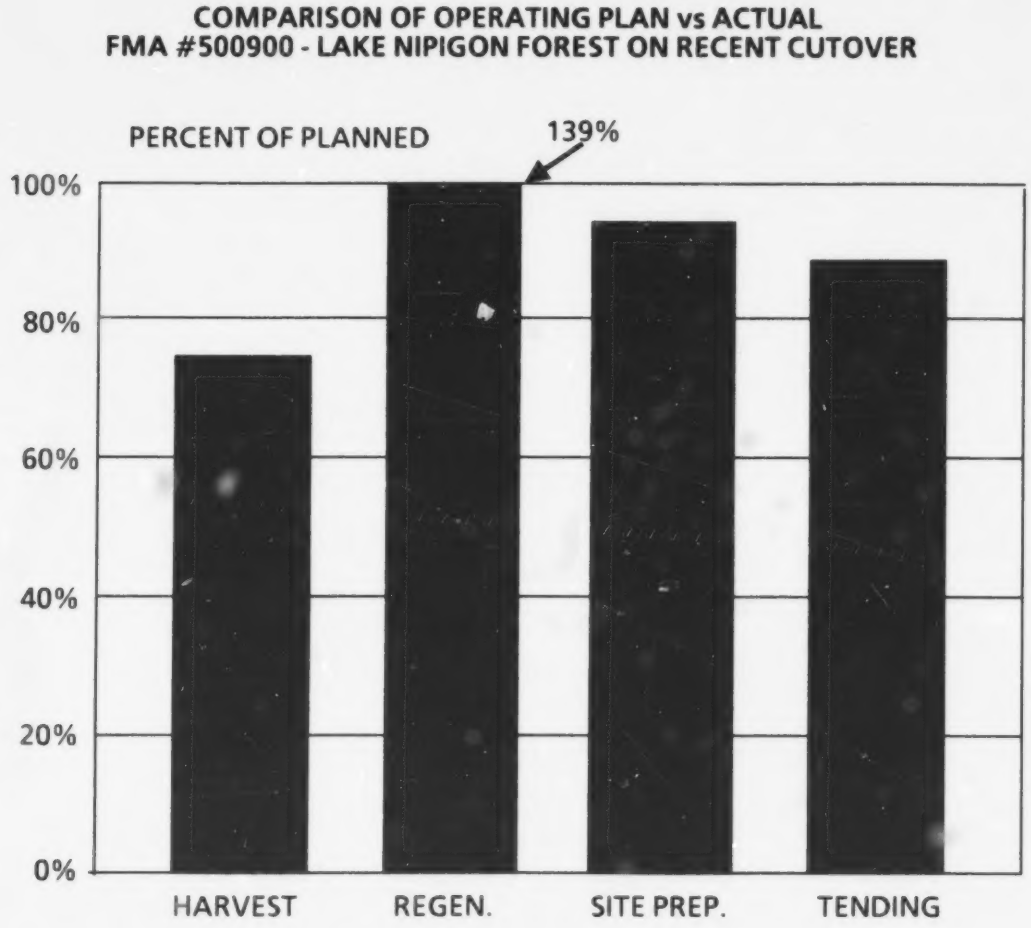
FMA EXPENDITURE AND ACCOMPLISHMENT REPORT	500900	LAKE NIPIGON FOREST DOMTAR FOREST PRODUCTS

FOR THE FIVE YEAR PERIOD 1981-1986

ACTIVITY	HECTARES	DOLLARS
NATURAL REGENERATION		
TOTAL	1,433	0
ARTIFICIAL REGENERATION		
PLANTING BAREROOT	771	
PLANTING CONTAINER	739	
SEEDING DIRECT	1,610	
SEEDING WITH SITE PREP	473	
TOTAL ARTIFICAL	3,593	438,982
TOTAL REGENERATION	5,026	438,982
TENDING		
CHEMICAL CLEANING/AERIAL	3,828	
CHEMICAL CLEANING/GROUND	0	
OTHER TENDING	128	
TOTAL TENDING	3,956	131,526
SITE PREPARATION		
MECHANICAL	4,334	
CHEMICAL	0	
PRESCRIBED BURN	0	
TOTAL SITE PREPARATION	4,334	1,279,366
OTHER		
SEED/CONE COLLECTION	0	0
PROTECTION	0	0
TOTAL SILVICULTURAL COSTS		1,849,874
ROAD CONSTRUCTION	KILOMETRES	DOLLARS
PRIMARY	0.00	0
SECONDARY	280.87	5,430,777
TOTAL CONSTUCTION	280.87	5,430,777
ROAD MAINTENANCE		
TOTAL	451.33	159,293
TOTAL ROAD COSTS		5,590,070
TOTAL EXPENDITURES		7,439,944

Figure 1

Comparison of the actual levels of harvest, regeneration, tending and site preparation on recent cutover accumulated to 1986 and expressed as a percentage of the levels originally planned in the 1981-86 Operating Plan.



b) Roads

Of the 447 km road system planned for the Lake Nipigon Forest during the initial five year period, only 335 km were approved for construction by the ministry during the annual planning process. Domtar completed 280.9 km of construction or 84 per cent of the approved target. This apparent shortfall was not required due to lower than anticipated harvesting, coupled with a well developed pre-Agreement road system in parts of the Agreement area.

With the exception of the need for additional "rip rap" on the south side of a culvert on Vincent Creek, and the need for stabilization of both sides of the culvert crossing at Cash Creek on the airport road west of Highway #11, the roads inspected were constructed to appropriate standards. In addition, roads were noted to be located with only minor and acceptable variations from planned locations. The standards of secondary roads built with FMA funds was comparable to that of company funded roads. The quality and quantity of road maintenance was appropriate to the standards of roads and their use.

Table 2

Summary of the amount of road planned, approved and actually constructed for the 1981-86 operating period. Maintenance is done annually.

	Kilometres			
Road Type	**Planned**	**Approved**	**Actual**	**% Achievement of Approved**
Primary	0	0	-	-
Secondary	447	335	280.9	84
Maintenance	n/a	n/a	451.0	n/a

c) Silviculture

Silviculture prescriptions vary across the unit with a mixture of planting, seeding, and natural regeneration techniques being applied, depending upon site conditions. Several forms of light site preparation, with a preference for bracke (machine used in site preparation), have been used. Planting stock has been a mixture of bare root and containerized seedlings. Aerial release, using 2-4-D and more recently the herbicide "Round-up", has been the most common tending technique.

Regeneration (Figure 1) was significantly (139 per cent) above target during the initial five year period, due primarily to the enthusiasm of company staff and availability of sites. In treating recent cutover the company is often less than one year behind the cut, making for some obvious planning and scheduling difficulties. Given this fact, site preparation success of 93 per cent of target (the shortfall being due to treatment deferment on a couple of areas) is most commendable.

Tending efforts were likewise very positive, achieving 88 per cent of the target levels set out in the plan.

Natural regeneration has been used primarily with hardwood stands, but more recently has been used in conjunction with light scarification of black spruce strip cuts in wet, rocky terrain. There has been an increasing trend by the company to plant better sites while seeding the more difficult, shallow soil sites.

The company is now working closely with ministry staff in exploring the feasibility of introducing prescribed burns as a means of slash removal and site prescription.

d) Not Satisfactorily Regenerated (NSR) Lands

The company was obligated by the Agreement to treat previously defined areas which were not satisfactorily regenerated (NSR). Early in the term of the Agreement, the company recognized that the stocking standard of 60 per cent established for NSR areas was considerably greater than the minimum stocking standard of 40 per cent set out in the Agreement ground rules for recent cutover. Not only did this difference appear to be illogical, but follow-through would also be extremely costly since many stands with 40 to 60 per cent stocking would have to undergo expensive forms of heavy site preparation.

At the request of the company, the Agreement area was jointly resurveyed in 1984 using a 40 per cent stocking standard consistent with the ground rules. This survey resulted in about 20 per cent of the defined NSR moving from a category requiring expensive treatment to bring it up to 60 per cent stocking to a category of free-to-grow stocked at 40 per cent or better.

The Ministry and Domtar have recognized the resurvey as being the proper obligation for NSR treatment on the Lake Nipigon Forest, and the Agreement has been amended accordingly.

Figure 2 shows that the company effort on site preparation and regeneration on NSR lands during the first five-year period was 42 per cent and 90 per cent of that planned. Part of this shortfall related to inaccurate mapping during the first survey, part to the slowdown placed on NSR treatment prior to the resurvey and, in year five, to a shortage of planting stock. Tending accomplishments during the first five-year period were 88 per cent of planned, the shortfall relating to a slight reduction in tending effort pending the new NSR survey results.

Given the uncertainties associated with the appropriateness of the initial NSR survey, the company's initiatives in this area are viewed as both acceptable and successful.

3. Surplus

The Agreement requires the company to define its surplus at the end of each five-year period.

Figure 2

Comparison of the actual levels of regeneration, tending and site preparation on not satisfactorily regenerated areas accumulated to 1986 and expressed as a percentage of the levels originally planned in the 1981-86 Operating Plan.

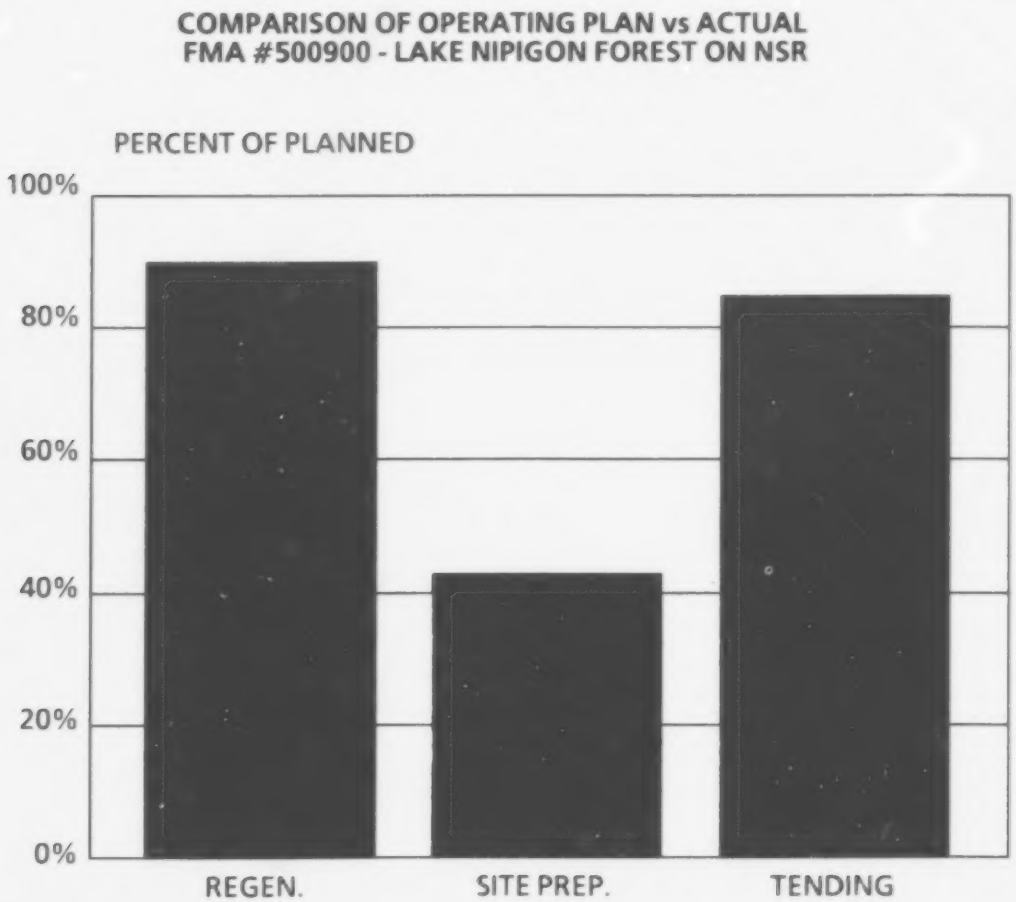


Table 3 indicates that there was an apparent shortfall of 4,455 hectares between forecasted demand and harvest cut for 1981-86. The company's precise mapping system excludes from the harvest cut small pockets of non-marketable and inaccessible areas which are defined as harvestable by the Forest Resources Inventory (FRI).

Table 3

Comparison of the Maximum Allowable Depletion, Forecasted Demand, and the actual harvest on the Lake Nipigon Forest (FMA 500900) for the period 1981-86.

	Working Group or F.U.	Five Year MAD (HA)	Forecasted Demand (HA)	Harvested Cut (HA)	Harvest: Demand (%)	Next 5 Year MAD
Spruce	SP2	17,405	11,700	10,560	90.3%	17,013
Jack Pine	PJ2	2,560	1,615	1,027	63.6%	2,761
Balsam Fir	BF2	8,805	1,965	1,051	53.5%	9,585
Protection Forest	PFR	2,840	1,865	1,243	66.6%	2,884
Other Conifer	OC2	470	0	21	N/A	479
Poplar	PO2	10,670	750	662	88.3%	11,251
White Birch	BW2	6,920	1,375	251	18.3%	7,333
	All	49,670	19,270	14,815	76.9%	51,306

Inclusion of this area in the harvest cut, as is standard practice elsewhere, reduces the difference between forecasted demand and harvest cut to about 3,400 hectares. This difference can be attributed to two factors: reduced demand caused by the economic slowdown of the early 1980s and a slightly higher yield than originally predicted.

The difference between the five-year Maximum Allowable Depletion (MAD) and the forecasted demand is generally viewed as surplus. The company, however, argues that items such as projected losses to fire, pathogens (disease), cull, inoperable/unmerchantable sites, and areas zoned out for other uses must be taken into consideration when calculating surplus. The company's estimate of these losses for the 1981-1986 period is approximately 42 per cent of the Maximum Allowable Depletion.

It also perceives the need for a buffer of 10 to 12 per cent of the forecasted demand as security against unanticipated constraints against purchase wood. Calculation of surplus by working group using the above approach indicates that over the 20-year time frame of the Agreement, the unit will be in a deficit supply with respect to conifer. The company has declared a surplus in the hardwood working groups for the second five-year period of 19,880 hectares, or 3,960 hectares annually.

The review team perceive it to be impractical to confirm the Company's surplus declarations for the Lake Nipigon Forest in isolation of more detailed knowledge of the status of wood availabilities on Domtar's White River FMA and Armstrong licence. While the approach outlined by the company may indeed be viable, the decision to accept it should only be made in light of the company's broader wood supply strategy. Therefore, the Ministry should review the broader Domtar wood supply strategy for the Lake Superior - north area and make decisions on the acceptability of the Lake Nipigon Forest surplus strategy on that basis.

4. Integrated Resource Management

The Nipigon Forest does not have a large number of user conflicts. Many of the lakes are naturally devoid of walleye, and no major tourist use based on sport fishing has developed. The broken terrain naturally confines harvesting to small irregular clear cuts and these, plus strip cuts, provide abundant cover and edge for moose. The company has been appropriately sensitive to the location of roads and bridges and the leaving of lakeshore and stream reserves to ensure continued protection of the existing fishery and its associated isolation.

One incursion into a reserve on Vincent Creek noted during the review is being followed up with appropriate action by the MNR District office. With one or two exceptions, stream crossings are generally well located and constructed; seeding of erodable cuts along road right-of-ways at stream crossings is becoming a common practice.

The company has an opportunity in the Lake Nipigon Forest to actively encourage and promote greater recreational use of the area by groups such as campers and hunters, in co-operation with the ministry and user groups.

Such a role would not only improve the perception of the forest industry in the eyes of the general public, but it would also firmly establish the company as an industry leader in the integrated management of its land base.

5. Records

The automated silvicultural record system of the company is based on the ministry's silvicultural information system and appeared to be both effective and efficient. The company keeps the only records on the unit, providing the ministry with data as appropriate. Good financial records were available, but were not yet effectively tied into the silvicultural record system, making the necessary cross-referencing between invoice

files and silvicultural and road files somewhat difficult.

6. Maintenance of Productivity

The Forest Management Agreement obligates the Company to produce successive crops of timber on a sustained yield basis. **Table 4** shows a comparison of the Maximum Allowable Depletion during the first five year term of the Agreement and lists the harvest, depletion and regeneration efforts. The Maximum Allowable Depletion for the next five year term is also shown. Normally the Allowable Depletion is expected to drop as the overmature portion of the forest is fully harvested or depleted. If the full Allowable Depletion is not depleted it will remain at the same or higher levels in subsequent terms.

Table 4

Comparison of the 1981-1986 Maximum Allowable Depletion, total depletion, harvest and regeneration activities and the 1986-1991 Maximum Allowable Depletion. (Ministry Phase-In operations included.)

FMA 500700
DOMTAR FOREST PRODUCTS LTD.
1981 TO 1986
Hectares

Working Group/or Forest Unit	1981-1986 Maximum Allowable Depletion	Total Depletion	Harvest Cut*	Regeneration Total	1986-1991 Maximum Allowable Depletion
Spruce	17,405	10,560	10,560	n/a	17,013
Jack Pine	2,560	1,027	1,027	n/a	2,761
Balsam Fir	8,805	1,051	1,051	n/a	9,585
Conifer PFR	2,840	1,243	1,243	n/a	2,884
Other Conifer	470	21	21	n/a	479
Poplar	10,670	662	662	n/a	11,251
White Birch	6,920	251	251	n/a	7,333
Total	49,670	14,815	14,815	6,164	51,306

*As reported in 1986/91 Operating Plan.

7. Company commitment

The review team found the company to be firmly committed to the FMA process. Since the initiation of the FMA process, the company has strengthened senior management responsibility in Ontario, has hired two additional foresters and two additional technicians, and, has begun to move forestry staff into operations.

The company is intensifying the use of whole tree chipping in the bush, in part as a way to better utilize balsam and poplar. Experimentation with different harvesting, site preparation (including prescribed fire) and regeneration techniques is being carried out in an attempt to improve the regeneration effort. The amount of regeneration work on the Lake Nipigon Forest has increased by about 90 per cent since the institution of the FMA.

Relationships between the company and the District forestry staff appear to be positive, open, and effective. The personal involvement of company forestry staff in extensive outdoor recreation pursuits has done much to promote integrated resource management practices on the unit.

On the whole, Domtar's management of the Lake Nipigon FMA has been positive and progressive and the company deserves commendation for its efforts and successes over the initial five year period.

III COMPANY CONCERNS

1. Surplus

The company purchases about 70 per cent of its mill furnish in the form of chips and perceives that a downturn in the chip supply would force the company to increase the harvest from the Lake Nipigon Forest. The company has therefore built in a 10 to 12 per cent buffer to cover off this contingency.

In addition, the company has calculated a 42 per cent reduction in harvestable hectares to account for zone out (not intended to be under forest management at this time -- e.g. a specific lakeshore reserve), unmanageable site conditions, unmerchantable wood, pathogens, and fire.

This approach puts the company in a deficit supply for conifer during the tenure of the FMA, particularly in the last two terms. Consequently, the company has maintained that no real conifer surplus exists, and that any perceived surplus must be carried to cover off future contingencies. The incursion of spruce budworm into the Forest's 16 per cent balsam working group in 1985 bolsters this position.

2. Untreatable Bypass

Domtar's pre- and post-cut mapping is considerably more detailed than FRI, and as a result the company has been bypassing areas of two-to-eight hectares (the latter being the ministry minimum cutoff) and not recording them as harvest depletion. Such bypass may have been for reasons of non-merchantability, non-marketability, impossible site conditions and/or inaccessability.

Therefore, Domtar's harvest cut versus the allocated stands shows a shortfall of some 10 per cent attributable to the combination of more precise mapping and the record-keeping method. Domtar would like the ministry to recognize this shortfall as a legitimate depletion and not be forced to factor it into the surplus declaration. The ministry would also benefit from this approach as the untreatable component of this depletable bypass is not factored into the site preparation (SIP) charges.

3. Container Stock

As with other FMA companies, Domtar has identified several concerns with respect to the provision of container stock by the Ministry:

- o The paper pots being used confine the expansion of spruce root systems making the trees susceptible to frost heave;

- o Second-crop spruce container stock is rarely perceived by the company to be up to agreed-upon size standards;

- o Stock sources are not being identified early enough in the year;

- o MNR North Central Region must overcome the shortage of container stock due to weather/disease problems.

4. Hardwood Utilization

Hardwood utilization is less than adequate because of high cull factor, lack of markets for northern wood and undercutting by third-party operators on the southern part of the licence.

The company is anticipating support from the ministry as it moves to strengthen operational planning for management of its third-party operations.

5. Budworm

The company is concerned about the ongoing budworm infestation in relationship to the 16 per cent of the production forest composed of the balsam fir working group. While the company will attempt to harvest more balsam via whole tree chipping in the short term, it wants the ministry to recognize the need to maintain sufficient conifer supplies to provide the needed flexibility in the unit in anticipation of serious losses in the balsam working group.

6. Timing of Funding Allocations

From a fiscal responsibility perspective, the company is less than happy with the late timing of formal funding allocation notices from the ministry. Generally, by the time allocation notices are received, the company is part way through the year's program and, given the realities of working within the political system, the potential threat of underfunding by government leaves the company feeling highly vulnerable.

IV RECOMMENDATIONS

1. That the Minister of Natural Resources extend Forest Management Agreement #500900 for an additional five-year term.

2. That Domtar in concert with the MNR Regional Office, review and revise, as appropriate, the stated objectives for the Lake Nipigon Forest by September 1, 1987.

3. That the MNR Regional office and Domtar agree on a method for handling small areas of depletable bypass, that the decisions as to what constitutes allowable depletable bypass be based on the mutual agreement of the company and the District, and that this process be incorporated into the ground rules by April 1, 1987.

4. That plans for third-party operators include the same level of detail as its own operational plans, that allocation of stands in the hardwood working group be brought in line with potential use, and that the company continue to attempt to improve utilization of the hardwood working group.

5. That Domtar actively pursue increasing utilization of balsam fir in its mill furnish in anticipation of losses to spruce budworm and in line with its stated position of a future shortfall of conifer on the Lake Nipigon Forest.

6. That Domtar be commended for and encouraged to continue to use riprapping and seeding of water crossings as part of its standard road building techniques.